

and enhanced the national taxation system, but improved the quality of life for the peasantry.

Medicine and pharmacology were other fields in which Sejong's busy academicians labored with much energy. As in agriculture, this research involved extensive local surveys of regional medical practice and medically efficacious herbs and substances. Between 1443 and 1445, a giant medical encyclopedia in 365 volumes was organized and completed. Although it does not survive today, its rich research provided a solid foundation for the later *Tong'ui pogam* (1610), which even today is frequently seen on the reference shelves of practitioners of traditional Chinese medicine throughout East Asia.

Sejong had a deep interest in music, and assigned a brilliant musicologist named Pak Yŏn to conduct research in classical Chinese and Korean musical theory, court music and musical instruments. Much new music was composed for official court functions; the scores for some of these compositions have been preserved in Sejong's annals. This research resulted in the recovery or reconstruction of older music and musical instruments, and is today highly regarded by all who specialize in the classical music of East Asia.

Nor were mathematics and the observational sciences ignored. Beginning in 1433, Sejong's astronomers, led by Chŏng Ch'öl, conducted studies of the various calendrical systems that had been used in China or Korea. The results — laid out in all their mathematical detail in the appendices to Sejong's annals — were embodied in the design of a battery of observational and demonstrational instruments developed during the 1430s, and in a spectacular clepsydra (water clock) built in the palace to indicate the nation's standard time. This work too served as a foundation for later research, contributing particularly to the weight-driven clock and demonstrational armillary sphere built in the 1660s, and a privately-made weight-driven

clock which also incorporated some later western features derived from Jesuit astronomical works compiled in China.

Military science was advanced by studies of earlier works on strategy and tactics, and by developmental research in artillery and pyrotechnical weapons. In the Sejong annals we find an interesting series of technical reports sent to the king directly from the proving grounds.

Printing technology had a long developmental tradition in Korea, going back to the world's earliest known xylographically (i.e., by wood block) printed text, dated 751, and the world's first cast metal movable typography, achieved in 1252. The Chosŏn kingdom produced its first font of metal movable type in 1403. Three fonts appeared during Sejong's reign — in 1420, 1434, 1436, and one just after his death, in 1450; of these, the "*kabin*" font of 1434 has received the greatest acclaim from printing connoisseurs and historians. Printing, however, is more than just fonts. Many problems involving inks, papers, matrix materials and design, and other areas, had to be identified and solved in order to make type-casting technology actually practicable on a wide scale. The bulk of this experimentation was carried out during Sejong's reign.

This background sketch of Sejong's various scientific and cultural projects demonstrates a remarkable procedural consistency. The king would identify an area for special research, designate the researchers from among people of appropriate talent or the staff of the Hall of the Wise, and follow the progress of the project through reports and his own personal reviews. In some cases the projects ended with a formal report or publication (as in the case of the provincial gazetteers or the scores of the court music), or with the design and production of certain items (as shown by the rain gauges, musical instruments, cannons). Sejong is the only king of the Chosŏn dynasty to have special appendices in his official annals devoted

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ed to such projects. In the modern edition these take up several hundred closely printed pages.

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